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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/768,560	01/25/2001	Michael Benjamin Ronci		5145

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EXAMINER	
VERBITSKY, GAIL KAPLAN	
ART UNIT	**PAPER NUMBER**
2859	

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/768,560	RONCI, MICHAEL BENJAMIN	
	Examiner	Art Unit	
	Gail Verbitsky	2859	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 07/15/2005, 09/19/2005, 01/19/2006

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 2-8 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 2-8 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 19 September 2005 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 03/11/2004.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION
Claim Objections

1. Claim 2 is finally objected to because of the following informalities:

Perhaps applicant should replace all occurrences of the term "layer(s)" in claim 1 with The term –segment(s) respectively in order to be complaints with the terminology of the specification. Furthermore, please note, that in the rejection on the merits of claim 2, the Examiner considers that the thermochromic display comprises a multiple segments (next to each other) of thermochromic inks. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 2-8 are finally rejected under 35 U.S.C. 103(a) as being unpatentable over Maruyama (U.S. 6620764) in view of Wunderlich et al. (U.S. 5451932) [hereinafter Wunderlich].

Maruyama discloses a ceramic mug (col. 21, line 24), a thermochromic display comprising thermochromic ink applied onto a film (supporting substrate) having an image (indication marks). The thermochromic display applied/ printed directly onto an outer surface of the ceramic mug. When hot water/ 70 degrees C (hot beverage) is poured into the mug, the thermochromic ink becomes transparent (from opaque) revealing image 3, as shown in Fig. 6 (col. 21, example 4).

Maruyama does not explicitly teach that the display comprises a plurality of segments possessing different transition temperature, as stated in claim 2, with the remaining limitations of claims 2-8.

Wunderlich discloses a thermochromic temperature indicator (display) comprising plurality thermochromic ink segments 50, 52, 64, 56 visible through windows 42, 44, 46, 48 and having different thresholds (transition temperatures). The thermochromic segments are adapted to be converted from opaque to transparent at different temperatures revealing a colored paint (marks) through a respective window. The display can be attached to a surface of interest by an adhesive (col. 3, lines 53-68 and col. 4, lines 1-6)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the display, disclosed by Maruyama, so as to have a plurality of different thermochromic ink segments, as taught by Wunderlich, responding to different temperatures by reveling different window (mark), so as to allow the operator to not only see an extreme temperature, but also to allow the operator to see an image (marks) corresponding to intermediate temperatures, in order to make the device usable with different types of media.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Maruyama, so as to be able to attach the display to the mug with an adhesive, as taught by, as taught by Wunderlich, in order to allow the operator to replace it when needed.

Response to Arguments

4. Applicant's arguments, filed July 15, 2005, with respect to claims 2-8 have been fully considered and are persuasive. Applicant's arguments are now moot in view of the new ground(s) of rejection necessitated by the present amendment.

Applicant states that liquid crystals cannot be directly applied to a ceramic mug, therefore, the liquid crystal display cannot be replaced with the thermochromic ink. This argument is not persuasive because both, liquid crystal display and thermochromic ink displays are thermochromic devices, which perform the same function of reveling/ covering indication marks when heated to a predetermined temperature. Also, Klima teaches that the liquid crystal is attached to a surface of interest.

Applicant states that neither Klima nor Weiss teach to fixedly attach the device to the surface of interest. This argument is not persuasive because, using the broadest reasonable interpretation, the Examiner considers any attachment to function as "fixedly" attachment for at least some duration of time, unless otherwise is specified or described in the specification.

Applicant states that Weiss is a non-analogous art since it measures charge, not temperature. This argument is not persuasive because Weiss teaches to attach a thermochromic ink indicator/ display to a battery and measures the battery's temperature, which is related to a charge, current, voltage or life of the battery. The indication revealed is indication of the temperature calibrated in units of interest (charge, current, voltage or life of the battery).

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

Newly submitted copy of the Affidavit Under Rules 131 and 132 (July 15, 2005) supporting applicant's claim of priority of the provisional application filed before August of 2000, as stated by applicant, is hereby acknowledged.

GB 1228232 discloses a thermochromic surface temperature indicating material comprising an array (segments) of the thermochromic materials of increasing transition temperature differently responding to different temperatures.

Weiss (U.S. 5830596) discloses in Fig. 8 a thermochromic display 24, 23 comprising a thermochromic layer 24 covering a mark/ indicia 23. The thermochromic ink goes from colored (opaque) to colorless (transparent) to reveal the mark/ indicia 23 underneath of it when exposed to a predetermined (activation) temperature/ heating from a surface of interest (battery). Weiss teaches that the thermochromic material could be either liquid crystal or thermochromic ink.

Heinmets et al. (U.S. 4156365) disclose a device/ thermochromic indicator 14 applied to an exterior wall of a food vessel (mug, col. 1, line 46) 10. The indicator has markers (marks) 16 and 18. The strip has an additional strip, which changes from transparent (clear) to a color marker 16 to indicate reaching or exceeding a predetermined temperature.

NL 1013024C2 discloses a temperature indicator/ display comprising a surface thermochromic ink layer that is transparent over a given temperature range, the layer covering at least one LC the color of which depends/ changing on the temperature measured. The temperature indicator can be attached to a beverage vessel (baby bottle with milk).

Klima discloses in Figs. 1-4 a heat-sensitive thermochromic display/ device (label) attachable to a surface of interest. The device comprises a support layer impregnated with a liquid crystal (thermochromic) layer 16, and, when activated by heating/ predetermined temperature, the layer 16 becoming transparent to light (col. 4, line 54) and an indicia/ mark/ information/ message 12 (HOT) becomes visible/ revealed to the user (as opposed to opaque when cooled). The display also comprises a base/ substrate 14 and an adhesive layer 23 to directly apply/ print the display having the substrate 14 and the adhesive layer 23 onto a surface of interest.

GB 2401176A discloses a device in the field of applicant's endeavor wherein a thermochromic inks are revealing a mark/ word "hot" or become faded (opaque) when a beverage inside a container is cold.

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gail Verbitsky whose telephone number is 571/ 272-2253. The examiner can normally be reached on 7:30 to 4:00 ET.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571/ 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GKV

Gail Verbitsky G. Verbitsky
Primary Patent Examiner, TC 2800

~~November 01, 2005~~
February 02, 2006